

इंटरनेट

मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8351 (1977): Spiral Pins (Heavy Duty Type) [PGD 31: Bolts, Nuts and Fasteners Accessories]



“ज्ञान से एक नये भारत का निर्माण”

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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



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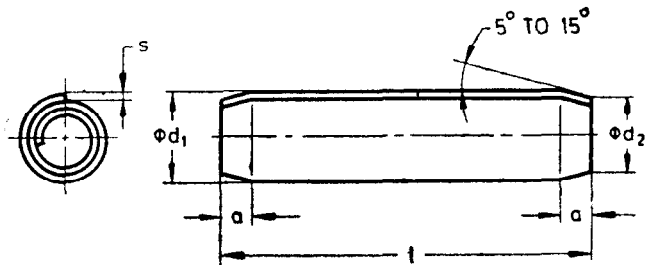


Indian Standard

SPECIFICATION FOR SPIRAL PINS  
(HEAVY DUTY TYPE)

- 1. Scope** — Covers the requirements of spiral pins of heavy duty type in the diameter range 1·5 to 6 mm.
- 2. Dimensions and Tolerances**
- 2.1** As given in Table 1.

TABLE 1 DIMENSIONS FOR SPIRAL PINS OF HEAVY DUTY TYPE



All dimensions in millimetres.

Size*		1·5	2	2·5	3	4	5	6	
a ≈		0·5	0·7	0·8	1	1·3	1·7	2	
s		0·17	0·22	0·28	0·33	0·45	0·56	0·67	
Before Fitting	d <sub>1</sub>	Basic	1·6	2·1	2·6	3·12	4·15	5·15	6·25
		Tol	+ 0·08 0	+ 0·1 0	+ 0·1 0	+ 0·13 0	+ 0·15 0	+ 0·15 0	+ 0·15 0
	d <sub>2</sub>	Basic	1·4	1·9	2·35	2·85	3·8	4·8	5·8
		Tol	0 − 0·1	0 − 0·15	0 − 0·15	0 − 0·15	0 − 0·2	0 − 0·3	0 − 0·4
Shear Force <i>Min</i> in N†	Single Shear	892	1 539	2 324	3 363	6 021	9 276	13 238	
	Double Shear	1 784	3 078	4 648	6 726	12 042	18 552	26 476	

\*Size of the spiral pin is also the nominal diameter of the receiving hole.  
†1 N ≈ 0·102 kgf.

2.2 The preferred length-size combinations of the spiral pins shall be as given in Table 2.

TABLE 2 PREFERRED LENGTH-SIZE COMBINATIONS OF SPIRAL PINS OF HEAVY DUTY TYPE

All dimensions in millimetres.

L		SIZE						
BASIC	TOL	1.5	2	2.5	3	4	5	6
4	+0.5 0							
5								
6								
8								
10								
12	+1 0							
14								
16								
18								
20								
22								
24								
26								
28								
30								
32								
36								
40								
45								
50								

Note — Preferred length-size combinations are between the stepped bold lines.

2.3 Tolerance on the hole receiving the pin shall be H12.

3. Material — Spiral pins of heavy duty type shall be made from carbon spring steel 75C6 (see IS:2507-1975 Cold rolled steel strip for springs) hardened and tempered to 350 to 475 HV [see IS : 1501-1968 Method for Vickers hardness test for steel (first revision) ].

4. Designation — Spiral pins of heavy duty type shall be designated by the name, size, length, number of this standard, and protective coating, if any.

Example:

A spiral pin of heavy duty type of nominal size 3 mm and length 24 mm with phosphate coating shall be designated as:

Spiral Pin 3 × 24 IS : 8351 Phosphated

5. Sampling and Acceptance

5.1 The sampling procedure for the testing and acceptance criteria for the spiral pins shall be in accordance with IS : 6821-1973 'Methods for sampling non-threaded fasteners'.

5.2 For purposes of sampling and criteria for conformity the classification of defects into major and minor shall be as follows:

Major Defect	Minor Defect
Outside diameter, $d_1$ (measured with a ring gauge)	Diameter over chamfer, $d_2$
	Sheet thickness, $s$
	Length, $l$
	Freedom from burrs

## 6. General Requirements

**6.1 Workmanship** — The surface of the spiral pins shall be smooth and free from scale and burrs. The outer edges shall be deburred and may also be slightly rounded.

**6.2 Finish** — The spiral pins shall be supplied in natural bright finish unless otherwise specified by the purchaser. At the request of the purchaser, spiral pins may be copper plated, nickel plated, cadmium plated or phosphated. The properties shall not be impaired by the protective coatings.

**6.3 Shear Strength** — Shear force in double shear when tested in accordance with IS : 5242-1969 'Method of test for determining shear strength of mild steel' with suitably hardened steel bushes, shall not be less than that specified in Table 1.

## EXPLANATORY NOTE

Spiral pins are used for joining (pinning) two or more parts. Apart from their role as fasteners, they may also be employed as hinges, pivots, locating devices, retainers and so on. The spiral shaped cross-section (approximately  $2\frac{1}{4}$  turns) confers high elastic deformability on the spiral pins. This means that they are also capable of sustaining dynamic loading. The individual turns of the pin exert a constant preload over the periphery so that a uniform bearing pressure is likely to result in the receiving hole.

The heavy duty pin is recommended where shear, shock and vibration loads are severe and where the static shear load is greater than the shock and vibration loads.

The two ends of the pin are given a conical form to facilitate entry into the receiving hole. The shear strength of the spiral pin is the same in every radial position and consequently there is no need to align them.

Medium duty spiral pins are covered by a separate Indian Standard. The difference between the two types of spiral pins is only in the sheet thickness and hence in shear strength. Dimensionally, the two types of spiral pins are interchangeable. Illustration of an application is given in Fig 1.

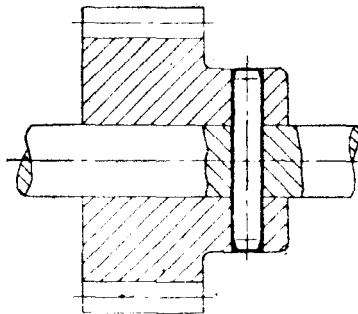


FIG. 1 USED AS A RADIAL PIN

In the preparation of this standard, considerable assistance has been derived from DIN 7344 Spiral — spannstifte, schwere Ausführung (Spiral pins, heavy duty type), 1969, issued by Deutsches Institut für Normung.